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10/815,654	04/02/2004	Shunpei Yamazaki	0756-7279	9416
31780	7590	04/24/2009	EXAMINER	
ERIC ROBINSON			LEWIS, MONICA	
PMB 955			ART UNIT	
21010 SOUTHBANK ST.			PAPER NUMBER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/815,654

Applicant(s)

YAMAZAKI ET AL.

Examiner

Monica Lewis

Art Unit

2894

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 48, 52, 56, 61-63 and 66-71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 48, 52, 56, 61-63 and 66-71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the response filed February 10, 2009.

Response to Arguments

2. Applicant's arguments with respect to claims 48, 52, 56, 61-63 and 66-71 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 48, 52, 56, 61, 66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brody et al. (U.S. Patent No. 3,657,613) in view of Nomura et al. (U.S. Patent No. 4,954,612) and Tanaka et al. (U.S. Patent No. 5,798,744).

In regards to claim 48, Brody et al. ("Brody") discloses the following:

- a) a flexible substrate (112) (For Example: See Figure 1);
- b) a resinous layer (124) formed over one of the flexible substrates (For Example: See Figure 1 and Column 1 Lines 73-75 and 1-5);
- c) a thin film transistor formed over the resinous layer, the thin film transistor having a semiconductor film comprising silicon (For Example: See Figure 1 and Column 2 Lines 31-36); and
- d) wherein the device is flexible (For Example: See Abstract).

In regards to claim 48, Brody fails to disclose the following:

- a) a pair of insulating substrates.

However, Nomura et al. ("Nomura") discloses the use of a pair of insulating substrates (For Example: See Column 11 Lines 54-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include a pair of insulating substrates as disclosed in Nomura because it aids in providing moisture resistance (For Example: See Column 11 Lines 54-60).

Additionally, since Brody and Nomura are both from the same field of endeavor, the purpose disclosed by Nomura would have been recognized in the pertinent art of Brody.

b) a layer comprising resin covering the thin film transistor.

However, Tanaka discloses a layer (145) comprising resin covering the thin film transistor (For Example: See Figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include a layer comprising resin covering the thin film transistor as disclosed in Tanaka because it aids in protecting the TFT (For Example: See Column 8 Lines 65-67).

Additionally, since Brody and Tanaka are both from the same field of endeavor, the purpose disclosed by Tanaka would have been recognized in the pertinent art of Brody.

In regards to claim 52, Brody discloses the following:

a) a flexible substrate (112) (For Example: See Figure 1);

b) a resinous layer (124) formed over one of the flexible substrates (For Example: See Figure 1 and Column 1 Lines 73-75 and 1-5);

c) a thin film transistor formed over the resinous layer, the thin film transistor having a semiconductor film comprising crystalline silicon (For Example: See Figure 1 and Column 2 Lines 31-36); and

d) wherein the device is flexible (For Example: See Abstract).

In regards to claim 52, Brody fails to disclose the following:

- a) a pair of insulating substrates.

However, Nomura discloses the use of a pair of insulating substrates (For Example: See Column 11 Lines 54-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include a pair of insulating substrates as disclosed in Nomura because it aids in providing moisture resistance (For Example: See Column 11 Lines 54-60).

Additionally, since Brody and Nomura are both from the same field of endeavor, the purpose disclosed by Nomura would have been recognized in the pertinent art of Brody.

- b) a layer comprising resin covering the thin film transistor.

However, Tanaka discloses a layer (145) comprising resin covering the thin film transistor (For Example: See Figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include a layer comprising resin covering the thin film transistor as disclosed in Tanaka because it aids in protecting the TFT (For Example: See Column 8 Lines 65-67).

Additionally, since Brody and Tanaka are both from the same field of endeavor, the purpose disclosed by Tanaka would have been recognized in the pertinent art of Brody.

In regards to claim 56, Brody discloses the following:

- a) a flexible substrate (112) (For Example: See Figure 1);

b) a resinous layer (124) formed over one of the flexible substrates (For Example: See Figure 1 and Column 1 Lines 73-75 and 1-5);

c) a thin film transistor formed over the resinous layer, the thin film transistor having a semiconductor film comprising a crystalline silicon (For Example: See Figure 1 and Column 2 Lines 31-36); and

d) wherein the device is flexible (For Example: See Abstract).

In regards to claim 56, Brody fails to disclose the following:

a) a pair of insulating substrates.

However, Nomura discloses the use of a pair of insulating substrates (For Example: See Column 11 Lines 54-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include a pair of insulating substrates as disclosed in Nomura because it aids in providing moisture resistance (For Example: See Column 11 Lines 54-60).

Additionally, since Brody and Nomura are both from the same field of endeavor, the purpose disclosed by Nomura would have been recognized in the pertinent art of Brody.

b) a layer comprising resin covering the thin film transistor.

However, Tanaka discloses a layer (145) comprising resin covering the thin film transistor (For Example: See Figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include a layer comprising resin covering the thin film transistor as disclosed in Tanaka because it aids in protecting the TFT (For Example: See Column 8 Lines 65-67).

Additionally, since Brody and Tanaka are both from the same field of endeavor, the purpose disclosed by Tanaka would have been recognized in the pertinent art of Brody.

Finally, the following limitation makes it a product by process claim: a) "formed by laser irradiation." The MPEP § 2113, states, "Even though product -by[-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in

product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted).

A "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972); *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); *In re Fessmann*, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a "product by, all of" claim, and not the patentability of the process, and that an old or obvious product, whether claimed in "product by process" claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear.

In regards to claim 61, Brody discloses the following:

a) silicon is amorphous silicon (For Example: Column 2 Lines 31-36).

In regards to claim 66, Brody fails to disclose the following:

a) flexible substrate comprises a plastic substrate.

However, Nomura discloses a plastic substrate (For Example: See Column 11 Lines 54-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include a plastic substrate as disclosed Nomura in because it aids in providing moisture resistance (For Example: See Column 11 Lines 54-60).

Additionally, since Brody and Nomura are both from the same field of endeavor, the purpose disclosed by Nomura would have been recognized in the pertinent art of Brody.

In regards to claim 67, Brody fails to disclose the following:

a) the flexible substrate comprises at least one selected from the group consisting of PET (polyethylene terephthalate), PEN (polyethylene naphthalate), PES (polyethylene sulfite) and polyimide.

However, Nomura discloses a flexible substrate that comprises at least one selected from the group consisting of PET (polyethylene terephthalate), PEN (polyethylene naphthalate), PES (polyethylene sulfite) and polyimide (For Example: See Column 11 Lines 54-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include a flexible substrate that comprises at least one selected from the group consisting of PET (polyethylene terephthalate), PEN (polyethylene naphthalate), PES (polyethylene sulfite) and polyimide as disclosed in Nomura in because it aids in providing moisture resistance (For Example: See Column 11 Lines 54-60).

Additionally, since Brody and Nomura are both from the same field of endeavor, the purpose disclosed by Nomura would have been recognized in the pertinent art of Brody.

5. Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brody et al. (U.S. Patent No. 3,657,613) in view of Nomura et al. (U.S. Patent No. 4,954,612), Tanaka et al. (U.S. Patent No. 5,798,744) and Takahashi et al. (U.S. Patent No. 5,712,496).

In regards to claim 62, Brody fails to disclose the following:

a) silicon is microcrystalline silicon.

However, Takahashi et al. ("Takahashi") discloses microcrystalline silicon (For Example: See Column 6 Lines 5-9). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include

microcrystalline silicon as disclosed in Takahashi because it aids in providing a high current driving performance (For Example: See Column 4 Lines 25-28).

Additionally, since Brody and Takahashi are both from the same field of endeavor, the purpose disclosed by Takahashi would have been recognized in the pertinent art of Brody.

6. Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brody et al. (U.S. Patent No. 3,657,613) in view of Nomura et al. (U.S. Patent No. 4,954,612), Tanaka et al. (U.S. Patent No. 5,798,744) and Nakayama et al. (U.S. Patent No. 5,231,297).

In regards to claim 63, Brody fails to disclose the following:

a) laser light comprises at least one selected from the group selected from the group consisting of KrF excimer laser light and XeCl laser light.

However, Nakayama et al. ("Nakayama") discloses a laser light selected from the group selected from the group consisting of KrF excimer laser light and XeCl laser light (For Example: See Column 3 Lines 62 and 63). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include a laser light that selected from the group consisting of KrF excimer laser light and XeCl laser light as disclosed in Nakayama because it aids in providing high energy (For Example: See Column 3 Lines 62-64).

Additionally, since Brody and Nakayama are both from the same field of endeavor, the purpose disclosed by Nakayama would have been recognized in the pertinent art of Brody.

7. Claim 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brody et al. (U.S. Patent No. 3,657,613) in view of Nomura et al. (U.S. Patent No. 4,954,612), Tanaka et al. (U.S. Patent No. 5,798,744) and Kitahara et al. (U.S. Patent No. 4,636,038).

In regards to claim 68, Brody fails to disclose the following:

a) resinous layer comprises acrylic resin.

However, Kitahara et al. ("Kitahara") discloses acrylic resin (For Example: See Column 1 Lines 52-68). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include acrylic resin as disclosed in Kitahara because it aids in preventing cracks (For Example: See Column 1 Lines 52-68).

Additionally, since Brody and Kitahara are both from the same field of endeavor, the purpose disclosed by Kitahara would have been recognized in the pertinent art of Brody.

8. Claim 69 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brody et al. (U.S. Patent No. 3,657,613) in view of Nomura et al. (U.S. Patent No. 4,954,612), Tanaka et al. (U.S. Patent No. 5,798,744) and Takenouchi et al. (U.S. Patent No. 5,427,961).

In regards to claim 69, Brody fails to disclose the following:

a) the resinous layer comprises at least one selected from the group consisting of methyl esters of acrylic acid, ethyl esters of acrylic acid, butyl esters of acrylic acid, and 2-ethylhexyl esters of acrylic acid.

However, Takenouchi et al. ("Takenouchi") discloses a resinous layer that comprises at least one selected from the group consisting of methyl esters of acrylic acid, ethyl esters of acrylic acid, butyl esters of acrylic acid, and 2-ethylhexyl esters of acrylic acid (For Example: See Column 3 Lines 55-59). It would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the semiconductor of Brody to include a resinous layer that comprises at least one selected from the group consisting of methyl esters of acrylic acid, ethyl esters of acrylic acid, butyl esters of acrylic acid, and 2-ethylhexyl esters of acrylic acid as disclosed in Takenouchi because it aids in preventing wear (For Example: See Column 4 Lines 47-50).

Additionally, since Brody and Takenouchi are both from the same field of endeavor, the purpose disclosed by Takenouchi would have been recognized in the pertinent art of Brody.

9. Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brody et al. (U.S. Patent No. 3,657,613) in view of Nomura et al. (U.S. Patent No. 4,954,612), Tanaka et al. (U.S. Patent No. 5,798,744) and Sato (U.S. Patent No. 5,268,777).

In regards to claim 70, Brody fails to disclose the following:

a) the thin film transistor comprises an inverted staggered thin film transistor.

However, Sato discloses a thin film transistor that comprises an inverted staggered thin film transistor (For Example: See Figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include a film transistor that comprises an inverted staggered thin film transistor as disclosed in Sato because it aids in providing a liquid crystal display device (For Example: See Abstract).

Additionally, since Brody and Tanaka are both from the same field of endeavor, the purpose disclosed by Tanaka would have been recognized in the pertinent art of Brody.

10. Claim 71 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brody et al. (U.S. Patent No. 3,657,613) in view of Nomura et al. (U.S. Patent No. 4,954,612), Tanaka et al. (U.S. Patent No. 5,798,744) and Hirota et al. (Japanese Patent No. 405299653).

In regards to claim 71, Brody fails to disclose the following:

a) the thin film transistor comprises a coplanar thin film transistor.

However, Hirota et al. ("Hirota") discloses a coplanar thin film transistor (For Example: See Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Brody to include a coplanar transistor as disclosed in Hirota because it aids in the formation of a display (For Example: See Abstract).

Additionally, since Brody and Hirota are both from the same field of endeavor, the purpose disclosed by Hirota would have been recognized in the pertinent art of Brody.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 571-272-1838. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Nguyen can be reached on 571-272-2402. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300 for regular and after final communications.

/Monica Lewis/
Primary Examiner, Art Unit 2894

April 22, 2009